PATENT ABSTRACTS OF JAPAN
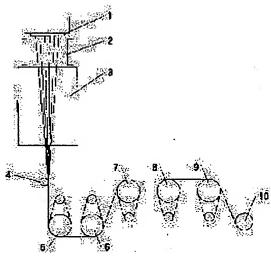
(51)Int.Cl.	D01F 6/04
	A41D 31/00
	D02J 1/22

(54) METHOD FOR PRODUCING HIGH-STRENGTH POLYOLEFIN FIBER

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a method for production of a high-strength polyolefin fiber in excellent productivity by a method producing the high-strength polyolefin fiber without using a mixture of a solvent with a polymer used in gel spinning or solution spinning method and by a technique different from direct spinning and drawing method in a conventional melt spinning.

SOLUTION: This method for producing a high-strength polyolefin fiber comprises carrying out melt spinning and direct drawing of a polyolefin polymer having 60,000 to 600,000 weight average molecular weight and $\leq$ 4.5 ratio (Mw/Mn) of weight average molecular weight to number-average molecular weight while satisfying the following conditions by direct spinning and drawing method using melt extrusion. (1) The fiber is taken off while cooling and solidifying the fiber at such a ratio (draft ratio) of a spinning velocity to a discharge linear velocity so as to afford $\geq$0.008 double refractive index (Δn) and (2) drawing of the fiber in a first step is continuously carried out in such a draw ratio as to afford $\geq$0.02 and $\leq$0.04 double refractive index by draw rolls whose surface temperature is not higher than crystal disperse temperature of the fiber and (3) drawing is further continuously carried out at a temperature not lower than the crystal disperse temperature of the fiber.

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[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

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